

# HOME & GARDEN INFORMATION CENTER

## Pine

The pine (*Pinus* species) is one of the most important groups of plants called conifers. There are many different species, each having its own physical characteristics and cultural requirements. Identifying features of different species include cone size and shape, and the number of long, slender needles in each bundle. Generally, pines are more adaptable to Southern climate conditions than spruces and firs.

### General Information on Pines

**Mature Height/Spread:** The height and spread varies depending on the species. Sizes of mature trees range from 4 feet (dwarf forms of mugo pine) to 100 feet (white pine).

**Growth Rate:** Growth rate varies depending on the species. White pine grows faster than other pine species at 8 to 12 inches per year.

**Ornamental Features:** Each species brings its own value to the landscape. Pines offer a variety of forms, needle structures, color (from blue to dark green) and texture (from fine to coarse).

**Landscape Use:** Pines can be used for windbreaks, accent trees or even foundation plantings. They are important not only for their ornamental value in the landscape but also for their commercial value (lumber, Christmas trees, turpentine).

Many problems associated with growing pines can be avoided by carefully preparing a proper planting site. Refer to fact sheet [HGIC 1001, Planting Trees Correctly](#). In general, pine trees grow best in well-drained, fertile soils, but a few species are adaptable to less favorable conditions. Pines should be transplanted with plenty of soil around the roots. Large species are often difficult to transplant

because of the deep tap root. Pruning pines is usually unnecessary, except to remove dead or broken branches.

Mulching around old and new pine trees is beneficial since it reduces water stress and weeds. For more information on mulching and mulch materials, refer to [HGIC 1604, Mulch](#).

When fertilizing newly planted trees, use slow-release fertilizers. Care should be taken if quick-release fertilizers are used since roots of young trees are sensitive to overfertilizing. During the second and subsequent years, 2 to 4 pounds of 10-10-10 fertilizer should be applied for every 100 square feet of bed area. For larger trees in open areas, about 2 pounds of 10-10-10 fertilizer can be applied for each inch of trunk diameter of the tree.

**Problems:** Pines planted around homes can develop several problems. One of the most serious problems is fusiform rust. This fungal disease causes weak places in the trunk, making the tree more likely to break in windstorms. Fusiform swellings look like indentations on the trunk. Sometimes a boring insect gets in these indentations. As it bores, pine pitch, a sticky material, oozes out. Usually, it is best to remove trees with fusiform rust.

Pines also have several insect problems. The most serious is the pine bark beetle, which usually invades weakened trees or those stressed by drought. For more information on this insect, refer to [EIS/TO-4, Pine Bark Beetles](#).

Most people get upset when the needles turn yellow and begin dropping off. In the fall, the dropping of interior needles is natural. But if yellowing occurs, have the tree checked by an expert. For more information on diseases of pine trees, refer to [HGIC 2008, Pine Diseases](#).

## Longleaf Pine

**Mature Height:** Longleaf pine (*Pinus palustris*) grows to 55 to 80 feet.

**Growth Rate:** Longleaf pine grows slowly during the first five to 10 years, after that the growth rate is quite fast (2 feet per year).

**Ornamental Features:** The dark green needles are more than a foot long in youth (called the grass stage), and are replaced by 9-inch needles when mature. The cones are 6 to 10 inches long and a dull brown. Young plants look like fountains of grass.

**Landscape Use:** Longleaf pine grows best on well-drained, sandy, acidic soils that are low in organic matter.



Longleaf pine needles and immature cones.  
William D. Boyer, USDA Forest Service, -  
[www.ipmimages.org](http://www.ipmimages.org)

**Problems:** Longleaf pine is less susceptible than other Southern pines to bark beetles and other insect pests. Fusiform rust is not a serious problem. This species is not tolerant of high winds and drought.

## Loblolly Pine

**Mature Height:** Loblolly pine (*Pinus taeda*) will grow to 90 feet, usually smaller under landscape conditions (40 to 50 feet).

**Growth Rate:** This is one of the fastest-growing southern pines. It can grow more than 2 feet per year.

**Ornamental Features:** The needles grow in groups of three, are 6 to 10 inches long, and dark green. The cones are grouped two to five together and are 3 to 6 inches long. The tree loses its lower

branches with age, forming a fairly open, oval-rounded crown at maturity.

**Landscape Use:** Loblolly pine is not a very graceful pine but it is very adaptable to extremes of soil and therefore valuable in the South where the more graceful species do not thrive. Loblolly pines are excellent for a fast screen in early years. This species is frequently container-grown, and it is easily transplanted. It prefers acid soils.



Loblolly pine needles  
Karen Russ, ©2006 HGIC, Clemson Extension

**Problems:** There are no particularly serious problems. Pine beetles, fusiform rust and butt rot may occur.

**Cultivars:** 'Nana' grows 8 to 15 feet tall with a dense, rounded crown.

## Slash Pine

**Mature Height:** Slash pine (*Pinus elliottii*) will reach 100 feet at maturity.

**Growth Rate:** This species grows fast (more than 2 feet per year).

**Ornamental Features:** The needles come in pairs or threes, are dark green and stiff. The shiny brown cones are 3 to 6 inches long. The tree has a dense, rounded crown.

**Landscape Use:** Slash pine is usually planted for quick shade and erosion control. This tree is moderately tolerant of adverse (soil and environment) conditions. It does grow on sandy soils that contain a poorly drained hardpan or in some wet areas.



**Problems:** Slash pine is very susceptible to fusiform rust. Trees that develop galls in the main stem are prone to breakage and early mortality.

### Spruce Pine

**Mature Height:** Spruce pine (*Pinus glabra*) grows to 50 to 90 feet.

**Growth Rate:** This species grows relatively fast.

**Ornamental Features:** The dark green, twisted, 3-inch long needles grow in bundles of two. The cones are 2 to 2½ inches long. This species has very low branches, casting heavy shade, which makes it very difficult to grow grass under this tree.

**Landscape Use:** Spruce pine prefers fertile, moist, acid soil, but it will tolerate heavy clay.

### White Pine

**Mature Height/Spread:** White pine (*Pinus strobes*) reaches 50 to 80 feet in height and 20 to 40 feet in spread. Sometimes, it can grow to 150 feet and more.

**Growth Rate:** This is one of the fastest growing landscape pines, growing more than 2 feet per year.

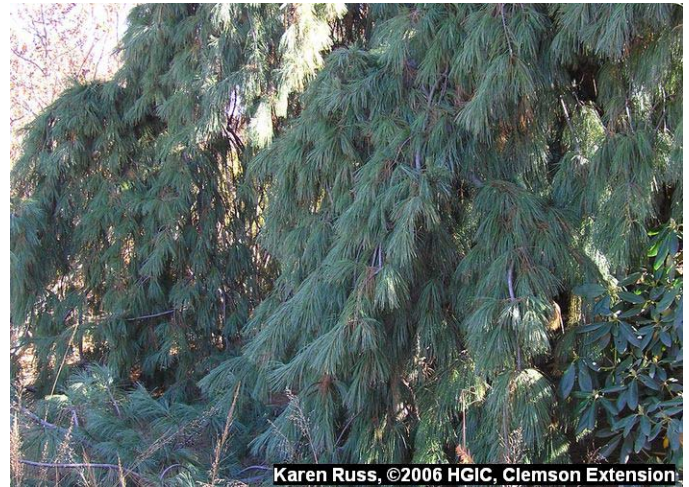
**Ornamental Features:** White pine needles are delicate, soft, and light bluish-green. White pine is easily recognized because it is the only commonly grown five-needled pine.

**Landscape Use:** Suggested uses for this species include border, screen, windbreak and specimen plant. It transplants easily because of its wide-spreading, moderately deep root system. It grows best on fertile, moist, well-drained soil and in full sun. On favorable sites, white pine sometimes grows too fast to retain its dense foliage, but this can be overcome by pruning one-half of the new growth tips in spring.

**Problems:** White pine is extremely intolerant of air pollutants (ozone, sulfur dioxide) and salts. It is not a good plant for city conditions or along roads. Iron chlorosis (yellowing of the needles) may develop in high pH soils. Two very serious pests include the white pine blister rust, a bark disease, which eventually kills the tree, and the white pine weevil, which kills the young top of the tree, seriously deforming it.

**Cultivars:** There are many cultivars available. A few are mentioned here.

- 'Compacta' is a dense, rounded, slow-growing type.
- 'Fastigiata' (pyramidal white pine) is a narrow upright form with narrow branch angles.
- 'Pendula' (weeping white pine) has drooping branches.
- 'Nana' (dwarf white pine) is a dwarf globe shaped form.



Weeping white pine

Karen Russ ©2006, HGIC, Clemson Extension

### Virginia or Scrub Pine

**Mature Height/Spread:** Virginia pine (*Pinus virginiana*) grows 15 to 40 feet in height with a 10 to 30 feet spread.

**Growth Rate:** The growth rate is slow, less than 12 inches per year.

**Ornamental Features:** The evergreen needles are grouped in pairs and remain for three to four years. They are yellow-green to dark green, often turning yellowish in winter. The cones grow two to four together or solitary and are 2 to 3 inches long and 1 inch wide.

**Landscape Use:** Virginia pine is not very ornamental but it is valuable as a cover for dry and barren soils and it is grown for the Christmas tree industry in South Carolina. It does well in poor, dry, heavy clay soils where other pines will not grow. It prefers full sun.

## Mugo Pine

**Mature Height/Spread:** Mugo pine (*Pinus mugo*) grows to a height of 15 to 20 feet and a width of 20 to 25 feet. The mature height and spread of some dwarf cultivars is only 4 to 5 feet.

**Growth Rate:** The growth rate of mugo pine is slow (less than 12 inches per year).

**Ornamental Features:** The needlelike, evergreen foliage is grouped in pairs. Its branches have a bottle-brush effect. The needles persist five or more years, but often turn yellowish green in winter, especially on the tips. The cones appear solitary or two to three together. They are 1 to 2 inches long and 1 inch wide.

**Landscape Use:** This species is valued mainly for its dwarf cultivars which are useful in foundation plantings. Mugo pine does not produce a tap root and is easy to transplant. It prefers partial shade to full sun and moist soil with a pH of 4 to 6. Mugo pine can be pruned annually to thicken the plant and keep the dwarf habit.

**Problems:** Mugo pine is susceptible to rust, wood rots, borers, sawflies and especially scale (often very serious).

### Cultivars:

- 'Compacta', a very dense and round shrub that grows to 4 feet by 5 feet.
- 'Gnom', a dense, dark-green mound, to 2 feet high and 3 feet wide.
- 'Mops' grows to 3 feet tall and the same in width and is considered one of the better forms.

## Japanese Black Pine

**Mature Height/Spread:** Japanese black pine (*Pinus thunbergiana*) reaches 20 to 80 feet in height with a greatly variable spread, usually 20 to 40 feet under cultivation.

**Growth Rate:** Japanese black pine has a medium growth rate of 1 to 2 feet per year.

**Ornamental Features:** The stiff, dark green needles occur in pairs and are 3 to 5 inches long. The terminal buds are gray to silvery white. This feature helps distinguish this species from most other pines. The cones are solitary or clustered, 1½ to 2½ inches long and 1 to 2 inches wide.

**Landscape Use:** Because of its tolerance of salt spray, Japanese black pine is invaluable for seashore plantings and very useful in stabilizing sand dunes. It also makes a good accent or bonsai plant. It transplants easily and prefers full sun and acid soil, but it will grow in a wide variety of soil conditions.

**Problems:** Japanese black pine doesn't suffer from serious pests.

### Cultivars:

- 'Compacta' is a dense, irregular, large shrub.
- 'Globosa' has a large, dense globe habit and dark green needles.
- 'Iseli' is gold variegated and has a broad pyramidal form (7 by 3 feet).
- 'Mini Mounds' grows to 4 feet high and 9 feet wide and forms mounds.
- 'Oculus-draconis' has leaves striped with two yellow bands.

**Note:** Chemical control of diseases and insects on large trees is usually not feasible since adequate coverage of the foliage with a pesticide cannot be achieved.

---

Prepared by Marjan Kluepfel, HGIC Information Specialist, and Bob Polomski, Extension Consumer Horticulturist, Clemson University. (New 10/99, Images added 11/06.)

---

This information is supplied with the understanding that no discrimination is intended and no endorsement by the Clemson University Cooperative Extension Service is implied. All recommendations are for South Carolina conditions and may not apply to other areas. Use pesticides only according to the directions on the label. All recommendations for pesticide use are for South Carolina only and were legal at the time of publication, but the status of registration and use patterns are subject to change by action of state and federal regulatory agencies. Follow all directions, precautions and restrictions that are listed.